

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD T. GRAY AND JUNKSIK LEE

Appeal No. 1997-2330
Application No. 08/398,315

ON BRIEF

Before PAK, OWENS, and TIMM, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1-4, 7, and 8, which are all of the claims pending in this application.

BACKGROUND

The Appellants' invention relates to an aqueous coating composition having extended open time and a method for extending the open time. Claims 1 and 4 are representative of the subject matter on appeal and are reproduced below:

1. A method for extending the open time of an aqueous coating composition comprising:

a) forming an aqueous coating composition comprising at least one film-forming latex polymer formed from at least one ethylenically-unsaturated monomer, said film-forming polymer having a glass transition temperature in the range of from -15EC to +50EC;

b) admixing with said aqueous coating composition:

at least one aqueous-based polyurethane dispersion having a glass transition temperature less than the glass transition temperature of the latex polymer, said polyurethane dispersion being non-reactive with said film-forming latex polymer; and

at least one water soluble coalescent;

b) applying said aqueous coating composition to an architectural substrate; and

c) drying said aqueous coating composition at temperatures in the range of from 0EC to 40EC.

wherein said aqueous coating composition is free from water-insoluble coalescents.

4. An aqueous coating composition having extended open time comprising:

a) at least one film-forming latex polymer formed from at least one ethylenically-unsaturated monomer, said film-forming polymer having a glass transition temperature in the range of from -15EC to +50EC;

b) at least one aqueous-based polyurethane dispersion having a glass transition temperature less than the glass transition temperature of the film-forming latex polymer, wherein said aqueous-based polyurethane dispersion is non-reactive with said film-forming latex polymer;

c) at least one water soluble coalescent;

wherein said aqueous coating composition is free from water-insoluble coalescents.

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Eckhoff	3,919,145	Nov. 11, 1975
Werner, Jr. et al. (Werner)	5,204,404	Apr. 20, 1993
Adamson et al. (Adamson)	5,270,380	Dec. 14, 1993
Floyd et al. (Floyd)	5,326,808	Jul. 05, 1994

Claims 1-4, 7 and 8 stand rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over Floyd. Claims 1-4, 7 and 8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Werner. Claims 1-4, 7 and 8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Eckhoff in combination with Adamson.

We cannot sustain any of the grounds of rejection for the following reasons.

OPINION

According to the Specification at page 2, second paragraph, the invention is directed to a method of extending the open time of an aqueous coating composition by adding a modifying compound to a film-forming latex polymer wherein one modifying compound may be used universally with all latex polymer chemistries and in all coating compositions since no interaction is required between the modifying compound and latex polymer. The modifier is an aqueous-based polyurethane

dispersion having a glass transition temperature less than the glass transition temperature of the latex polymer. This polyurethane dispersion is admixed with the film-forming latex polymer. The claims further require the presence of a water-soluble coalescent and the absence of water-insoluble coalescent.

The Rejection over Floyd

In regard to the rejection under 35 U.S.C. § 102(e)/103 over Floyd, we agree with the Examiner that Floyd discloses aqueous coating compositions which comprise film-forming latex polymers and aqueous polyurethane dispersions. However, the claims also require the presence of at least one water-soluble coalescent in the aqueous coating composition. We agree with Appellants that the Examiner has failed to establish that Floyd contains a teaching or suggestion of including a water-soluble coalescent in a mixture of latex polymer with polyurethane dispersion for the reasons below.

The Examiner argues that “the component which Appellants contend is the ‘water soluble coalescent’ (Specification, page 5) corresponds to the components which the Floyd reference includes in Example 7” (Answer, page 5). Example 7 of Floyd does list propylene glycol as an ingredient in the coating and propylene glycol is disclosed in Appellants’ Specification at page 5 as being a suitable water-soluble coalescent. However, the latex paints used in Example 7 are those prepared using the polymers of Examples 1-5 and contain polyester, not polyurethane dispersion. As the formulation of Example 7 does not contain a polyurethane dispersion, Example 7 teaches neither the claimed composition nor the claimed method.

The Examiner further points to column 5, lines 29+ of Floyd which discloses that an excessive amount of the component, i.e., the ethylene glycol or propylene glycol, which corresponds to Appellants' water-soluble coalescent, is used in the formation of the polyurethane dispersion. The Examiner concludes that this excessive amount would meet the present claims because the amount of coalescent required by the claims is open to trace amounts (Answer, page 5). However, there is no reasonable basis to believe that one of ordinary skill in the art would have performed the synthesis of the polyurethane dispersion so that excess glycol would have remained in the end product coating. As taught by Floyd at column 5, lines 34-37, the ethylene glycol or propylene glycol is used to form a polyester prepolymer with excess hydroxyl functionality. The reference does not indicate that any glycol remains after reacting to form the excess hydroxyl groups. This prepolymer is then further reacted to form a polyester-polyurethane. The teaching of Floyd would seem to indicate that all the glycol is to be reacted. There is no intention to leave any unreacted. The Examiner has not established that Floyd teaches or suggests inclusion of an alkylene glycol or any other water-soluble coalescent in the coating.

Rejection over Werner

In rejecting the claims under 35 U.S.C. § 103 over Werner, the Examiner states that the Werner composition is compositionally the same as the claimed composition (Answer, page 6). The Appellants, however, point out at page 13 of their appeal brief that Werner does not teach or suggest compositions including a water-soluble coalescent. In response, the Examiner points to Appellants'

Specification which says that the water-soluble coalescent “may be present as a result of coalescent use in the manufacture of a component in the coating composition such as, for example, the polyurethane dispersion.” The Examiner then states that “inclusion of such coalescence would meet the present claim limitation.” (Answer, page 7).

Appellants’ Specification indicates that the water-soluble coalescent “may be separately added or may be *present* as a result of coalescent use in the manufacture of a component in the coating composition...” Therefore, the Specification indicates that no matter which way the coalescent is introduced, it must be affirmatively present in the end product coating. This is consistent with the claims. Claim 1 requires admixing the water-soluble coalescent with the aqueous coating composition. Claim 4 is directed to an aqueous coating composition containing water-soluble coalescent.

The question is: Does Werner teach or suggest inclusion of a water-soluble coalescent in a coating composition as required by the claims? We answer no. Werner does disclose using ethylene glycol in the formation of a polyester urethane which can constitute the polyurethane dispersion. However, there is no disclosure that any ethylene glycol remains unreacted or that one of ordinary skill in the art would have sought to leave any unreacted. Therefore, mixing the polyurethane dispersion with the latex as taught by Werner would not have necessarily resulted in a coating composition containing ethylene glycol as a water-soluble coalescent. Furthermore, the Examiner has pointed to no reason, suggestion or motivation in the prior art for adding an excess which would have remained unreacted.

Rejection over Eckhoff in combination with Adamson

Appellants' claims also require that the aqueous coating composition be free from water-insoluble coalescent¹. We agree with Appellants that the coatings suggested by Eckhoff contain water-insoluble coalescent.

Eckhoff presents seven examples illustrating the chemistry and manufacture of an aqueous coating composition. The first four examples are directed to polyurethane intermediate manufacture and do not contain film-forming latex polymer. Example 6 is directed to a non-film forming composition containing no polyurethane. However, Examples 5 and 7 are both directed to emulsions of polyurethane and latex.

Appellants argue that the emulsion disclosed in Example 5 contains xylol (Brief, pages 16-17). Appellant states that xylol is a water-insoluble coalescent and thus excluded by the claims (Brief, page 17). The xylol, as pointed out by both the Appellants and the Examiner (Brief, page 16-17; Answer, pages 8-9), is introduced during the synthesis of the polyurethane dispersion. The critical question is whether the xylol is present in the composition of Example 5. We conclude that it is present for the following reasons.

¹We note that the language "free from water-insoluble coalescent" was present in original claim 5, but that we were unable to find any similar disclosure in the Specification. Appellant should verify that the concept of forming the composition free from water-insoluble coalescent is discussed in the Specification and, if it is not, Appellants should introduce language in the Specification to provide antecedent basis being careful not to add any new matter.

The formation of the Example 5 emulsion begins with the production of a intermediate polyurethane resin dissolved in a hydrocarbon solvent. Example 1 discloses xylol as an ingredient. Claims 9 and 10 of Eckhoff indicate that the polyurethane is dissolved in a hydrocarbon solvent consisting of xylene and mineral spirits. Xylol is a mixture of xylenes. Eckhoff discloses using xylol in Example 1 to “reduce the non-volatile content [of the polyurethane intermediate] to 84%.” It is being used as a solvent. The polyurethane intermediate dissolved in solvent made by the process of Example 1 is converted into an alkyd-modified polyurethane as illustrated in Example 3. Further xylol solvent is added according to the Example 3. As the xylol is being used as a solvent and not as a reactant, we cannot conclude that it is converted during processing. The formulation of Example 5 contains xylol and Appellants indicate that xylol is an excluded water-insoluble coalescent.

Example 7 is the only other example directed to a composition containing polyurethane dispersion and latex. As pointed out by Appellants at page 17 of the Brief, Eckhoff’s Example 7 composition contains 2,2,4-trimethylpentane-1,3-diol monoisobutyrate, a water-insoluble coalescent². There is no suggestion in either Eckhoff or Adamson for excluding the water-insoluble coalescent. Therefore, we cannot conclude that the exclusion of water-insoluble coalescent would have been obvious to one of ordinary skill in the art at the time of invention.

²Note that Appellants specifically state in the Specification at page 6 that water-insoluble coalescents include, for example, 2,2,4-trimethylpentane-1,3-diol monoisobutyrate.

We conclude that the Examiner has not established a *prima facie* case of unpatentability with respect to the subject matter of the appealed claims.

CONCLUSION

To summarize, the decision of the Examiner to reject claims 1-4, 7 and 8 under 35 U.S.C. §§ 102(e) and 103 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED

CHUNG K. PAK)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
TERRY J. OWENS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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CATHERINE TIMM)	
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APPLICATION NO. 08/398,315

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DECISION: **REVERSED**

Prepared By: TINA D. LEE

DRAFT TYPED: 17 Dec 01

FINAL TYPED: